

What is claimed is:

1. A method for the automatic generation of message validation and/or transformation software from message interface specifications and business rules for use in a message processing system comprising the steps of:

- inputting a set of message definitions, data dictionary entries and/or business rules using a structured editor to create a set of structured files that define the message interface and/or business rules;
- generating message validation software from the set of structured files;
- storing the message validation and transformation software in one or more databases for use by the message processing system.

2. The method of claim 1 wherein the set of message definitions and data dictionary entries can be reused to develop additional message definitions, dictionary entries and/or business rules across an enterprise.

3. The method of claim 1 further comprising the step of generating message transformation software from the set of structured files.

4. The method of claims 2 or 3 wherein the structured files are in the XML format.

5. The method of claim 4 wherein the generation of message transformation software and message validation software further comprises the step of translating the structured files in the XML format into Extensible Stylesheet Language Transforms (XSLT).

6. The method of claim 1 wherein the step of generating message validation software further comprises the step of inputting the structured files into a schema generator in order to generate a set of W3C XML Schema to be used to validate messages.

7. The method of claim 1 wherein the step of inputting further comprises the step of validating the structured files to ensure the structured files conform to a pre-determined structure.

8. The method of claim 1 wherein the structured editor provides a graphical user interface to the requirements engineer for editing the structured files in a tabular format.

9. The method of claim 1 wherein the structured files are presented to the user in HTML.

10. The method of claim 9 wherein the structured rule editor uses a web browser to present the HTML to the user.

11. The method of claim 1 further comprising the step of producing a report detailing differences between two sets of structured files.

12. The method of claim 6 further comprising the step of modifying the structured files after generating the XML schema in order to correct errors identified by the schema generator.

13. The method of claim 6 further comprising the step of inputting the set of interface schemas into a schema validator to determine if the generated schemas are correctly formatted and consistent.

14. The method of claim 13 further comprising the step of modifying the structured files after validating the schema in order to correct errors identified by the schema validator.

15. The method of claim 1 further comprising the step of transferring pre-existing word processing formatted business rule documents into structured files.

16. The method of claim 6 further comprising the step of importing from existing W3C XML Schema files into a set of structured files.

17. The method of claim 15 further comprising the steps of:
- translating the word processing formatted document into an XML formatted document;
  - parsing the XML formatted document to identify unparseable constructs and errors;
  - presenting the unparseable constructs and errors to the requirements engineer for modification;
  - rewriting the unparseable constructs into a structured construct using the structured rule editor; and,
  - repeating the parsing, presenting and rewriting steps until all unparseable constructs and errors are substantially eliminated.

18. The method of claim 1 further comprising the step of generating a set of test cases to provide test messages with which to test the message transformation and message validation software.

19. A system for the automatic generation of message validation software and/or transformation software from business rules for use in a message processing system comprising:

- a structured editor for inputting a set of message definitions, data dictionary entries and business rules to form a set of structured files that defines the message interface as a set of nested elements and groups of elements and business rules;
- means for generating message validation software from the structured files;
- storage means for storing the message validation and transformation software in one or more databases for use by the message processing system.

20. The system of claim 19 further comprising the means for generating message transformation software from the structured files.

21. The system of claim 19 wherein the set of message definitions and data dictionary entries can be reused to develop additional message definitions, dictionary entries and/or business rules across an enterprise.
22. The system of claim 19 wherein the means for generating the schema inputs to message validation software from the structured files is an XML schema generator.
23. The system of claim 19 or 20 wherein the means for generating message transformation software and message validation software further comprises a means for translating the structured files in the XML format into Extensible Stylesheet Language Transforms (XSLT).
24. The system of claim 19 wherein the structured editor comprises a means for constraining the inputs into the structured files to ensure the structured files conform to a pre-determined structure and content.
25. The system of claim 19 wherein the structured editor comprises a graphical user interface for editing the structured files in a tabular non-XML format.
26. The system of claim 24 wherein the structured editor limits the selection of attributes available to a user during definition of an element, group of elements or rule.
27. The system of claim 19 further comprising means for generating an index listing of all elements used in an interface definition, cross referencing entries within data dictionaries with their appearances within message definitions.
28. The system of claim 19 further comprising a means for pruning a data dictionary into a data dictionary that comprises only those elements and/or group of elements that are used in a message interface definition.

29. The system of claim 19 further comprising a project interface for providing access to the user of all structured files used to define the project and access to all functions that can be performed on such files.

30. The system of claim 19 wherein the structured editor is a table editor which enables the user to input tables selected from the group consisting of: Message Definition Tables, Data Dictionary Tables, Business Rule Tables, Error Tables, Variable Definition Tables, and Requirements Trace Matrix Tables.

31. The system of claim 19 further comprising a document generator for generating user-readable documentation specifying the message definition interface and business rules.

32. The system of claim 19 further comprising a compare tool for comparing a first structured file or document with a second structured file or document in order to develop a list of differences between such files or documents.